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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,084	02/03/2006	Naokuni Inada	P29224	2324
7055 7590 12/24/2008 GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191				
EXAMINER ZEMEL, IRINA SOFIA				
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE		DELIVERY MODE		
12/24/2008		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com

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# Office Action Summary

## Application No.

10/567,084

## Applicant(s)

INADA ET AL.

## Examiner

Irina S. Zemel

## Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 15 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/ISAC)  
Paper No(s)/Mail Date 5/4/06/6/21/06
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☒ Other: IDS 9/15/06

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In the base claims, the resin is described as "olefin modified polystyrene based resin", implying that polystyrene is being modified with polyolefin, however, it appears from the specification that it is the polyolefin resin that is being modified with polystyrene. Clarification is requested.

In claim 10, it is not clear hot the amount of styrene not containing polymerization initiator can be as high as 60 %, while the base claim 9 requires 90 % of the styrene monomer being added with the initiator.

The meaning of claim 19 is unclear insofar as what is used as a cushioning material.

***Claim Rejections - 35 USC § 102/103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 7, 11, 13-14, 16-19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US Patent 4,647,593 to Bartosiak et al., (hereinafter "Bartosiak").

Bartosiak discloses pre-expanded beads obtained by dispersing a polypropylene based polymer beads in water, adding styrene monomer, along with polymerization initiator, allowing the monomer to impregnate the polymer beads and polymerizing the monomer within the polypropylene based beads, impregnating the resulting beads with blowing agent and pre-expanding the resulting beads. See the entire document and the illustrative examples. The amounts of relative components disclosed in the reference fully correspond to the claimed amounts. Addition of crosslinking agent (which is also a visbreaking catalyst) is disclosed by the reference. The reference further contemplates increasing temperature at the end of polymerization which assures almost complete polymerization of monomer, thus inherently satisfying the claimed amounts of monomer in the bead. The temperature ranges disclosed, for example, in column 3, lines 17-27 read on the claimed temperatures for at least part of the polymerization process. The density of the pre-expanded beads disclosed in the reference correspond to the claimed density. See illustrative example 1. The pre-expanded beads are expansion molded in an article.

The reference does not address the claimed absorbance ratio, polyolefin content in surface, molecular weight of polystyrene (PS) or the power at which the suspension is stirred. With regard to the stirring power, it is reasonably believed that the power used in illustrative examples is inherently substantially identical to the claimed power. This believe is based on the fact that in the applicants comparative examples that used higher stirring power, flat particles not capable of the expanding are obtained. In the examples of the reference, bead-type particles with excellent expansion ability were obtained. In the alternative, adjusting the power used for stirring would have been a matter of optimization to achieve the most economic process conditions coupled with desired degree of mixing.

In view of the above discussion, since it is believed that the method of obtaining the particles disclosed in the reference is substantially identical in the process disclosed by the applicants, the particles produced in the examples of reference are inherently of the same properties as claimed. Insofar the molecular weights of the PS, it is reasonable believed that the disclosed particles inherently exhibit this property also based on the amount of added styrene, initiator, and the fact that substantially all of the polymer is reacted.

The burden is shifted to the applicants to provide factual evidence to the contrary.

Claims 1-5, 7, 13-14, 16-19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US Patent s 4,303,757

or 4,303,756 both to Kajimura et al., (hereinafter "Kajimura '757 and Kajimura '756, respectively)

Both references disclose pre-expanded beads obtained by dispersing a polypropylene based polymer beads in water, adding styrene monomer, along with polymerization initiator, allowing the monomer to impregnate the polymer beads and polymerizing the monomer within the polypropylene based beads, impregnating the resulting beads with blowing agent and pre-expanding the resulting beads. See the entire documents, the illustrative examples and tables. The amounts of relative components disclosed in the references fully correspond to the claimed amounts. Addition of crosslinking agent, such as dicumyl peroxide is disclosed by the references. The references further contemplate increasing temperature at the end of polymerization which assures almost complete polymerization of monomer, thus inherently satisfying the claimed amounts of monomer in the bead. The density of the pre-expanded beads disclosed in the reference correspond to the claimed density. See illustrative example 1 in both references, tables. The pre-expanded beads are expansion molded in an article.

The reference does not address the claimed absorbance ratio, molecular weight of polystyrene (PS) or the power at which the suspension is stirred. With regard to the stirring power, it is reasonably believed that the power used in illustrative examples is inherently substantially identical to the claimed power. This belief is based on the fact that in the applicants comparative examples that used higher stirring power, flat particles not capable of the expanding are obtained. In the examples of the reference,

bead-type particles with excellent expansion ability were obtained. In the alternative, adjusting the power used for stirring would have been a matter of optimization to achieve the most economic process conditions coupled with desired degree of mixing.

In view of the above discussion, since it is believed that the method of obtaining the particles disclosed in the reference is substantially identical in the process disclosed by the applicants, the particles produced in the examples of reference are inherently of the same properties as claimed. Insofar the molecular weights of the PS, it is reasonable believed that the disclosed particles inherently exhibit this property also based on the amount of added styrene, initiator, and the fact that substantially all of the polymer is reacted.

The burden is shifted to the applicants to provide factual evidence to the contrary.

Claims 1-7, 11-14, 16, 18-19 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US Patent 4168353 to Kitamori, (hereinafter "Kitamori")

Kitamori discloses pre-expanded beads obtained by dispersing a polyethylene based polymer beads in water, adding styrene monomer, along with polymerization initiator, allowing the monomer to impregnate the polymer beads and polymerizing the monomer within the polypropylene based beads, impregnating the resulting beads with blowing agent and pre-expanding the resulting beads. See the entire document and the illustrative examples. The amounts of relative components disclosed in the reference fully correspond to the claimed amounts. The styrene polymerization temperature

ranges disclosed, for example, in column 6, lines 51 et seq., read on the claimed temperatures as the melting temperatures of polyethylenes inherently fall within 120-130 C or about ranges. The density of the pre-expanded beads disclosed in the reference correspond to the claimed density. See illustrative example1. The pre-expanded beads are expansion molded in an article.

The reference does not address the claimed absorbance ratio, polyolefin content in surface, molecular weight of polystyrene (PS) or the power at which the suspension is stirred. With regard to the stirring power, it is reasonably believed that the power used in illustrative examples is inherently substantially identical to the claimed power. This believe is based on the fact that in the applicants comparative examples that used higher stirring power, flat particles not capable of the expanding are obtained. In the examples of the reference, bead-type particles with excellent expansion ability were obtained. In the alternative, adjusting the power used for stirring would have been a matter of optimization to achieve the most economic process conditions coupled with desired degree of mixing.

In view of the above discussion, since it is believed that the method of obtaining the particles disclosed in the reference is substantially identical in the process disclosed by the applicants, the particles produced in the examples of reference are inherently of the same properties as claimed. Insofar the molecular weights of the PS, it is reasonable believed that the disclosed particles inherently exhibit this property also based on the amount of added styrene, initiator, and the fact that substantially all of the polymer is reacted.

The burden is shifted to the applicants to provide factual evidence to the contrary.

***Claim Rejections - 35 USC § 103***

Claims 8-10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bartosiak.

The disclosure of Bartosiak is discussed above. While the reference does not disclose the specific amounts of styrene added at any stage of polymerization, the reference expressly states that either the monomer or catalyst (initiator) can be added together or separately, all at once or in increments, implying that addition in any sequence is suitable for the invention, including, as one of the possible variation addition of separate charge of polystyrene at the end of polymerization. It is noted that such addition of pure monomer at the end of polymerization (in desired amounts) is further known in the art of radical polymerization fore better control of the resulting molecular weight and MWD of the polymers. Thus, the claimed sequence of adding monomers would have been obvious with reasonable expectation of adequate results.

The reference does not disclose the specific type of stirrer used, thus implying that any known types the claimed stirrers are suitable for the process as well known types of stirrers. In addition, the limitation to the specific type of equipment, i.e., paddle-type stirring wings in a process claims is not given patentable way as the specific

limitation does not affect the process in any manipulative way over any other type of stirrers as in both case the step of stirring is equally performed.

Claims 8-10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitamori.

The disclosure of Kitamori is discussed above. While the reference does not disclose the specific amounts of styrene added at any stage of polymerization, the reference expressly states that either the monomer or catalyst (initiator) can be added together or separately, all at once or in increments, implying that addition in any sequence is suitable for the invention, including, as one of the possible variation addition of separate charge of polystyrene at the end of polymerization. It is noted that such addition of pure monomer at the end of polymerization (in desired amounts) is further known in the art of radical polymerization for better control of the resulting molecular weight and MWD of the polymers. Thus, the claimed sequence of adding monomers would have been obvious with reasonable expectation of adequate results.

The reference does not disclose the specific type of stirrer used, thus implying that any known types the claimed stirrers are suitable for the process as well known types of stirrers. In addition, the limitation to the specific type of equipment, i.e., paddle-type stirring wings in a process claims is not given patentable way as the specific limitation does not affect the process in any manipulative way over any other type of stirrers as in both case the step of stirring is equally performed.

Claim is 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kajimura '757 or '756.

The disclosure of Kajumura references is discussed above. The reference does not disclose the specific type of stirrer used, thus implying that any known types the claimed stirrers are suitable for the process as well known types of stirrers. In addition, the limitation to the specific type of equipment, i.e., paddle-type stirring wings in a process claims is not given patentable way as the specific limitation does not affect the process in any manipulative way over any other type of stirrers as in both case the step of stirring is equally performed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irina S. Zemel whose telephone number is (571)272-0577. The examiner can normally be reached on Monday-Friday 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571)272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Irina S. Zemel/  
Primary Examiner, Art Unit 1796

Irina S. Zemel  
Primary Examiner  
Art Unit 1796

ISZ